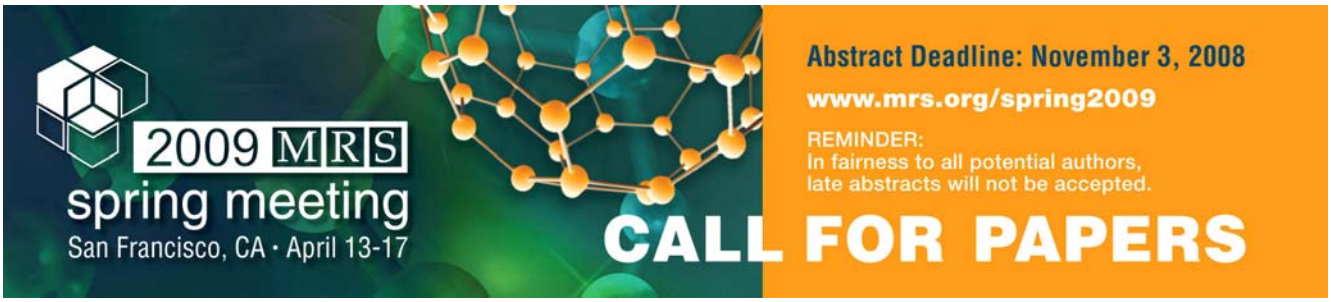

MRS Symposium S: Materials in Photocatalysis and Photoelectrochemistry for Environmental Applications and H_2 Generation

Tapping sunlight as *the* primary and renewable energy source by means of photocatalysis is increasingly moving in the focus of public attention. Progress in nanoparticle research and architectonics, computational materials science, combinatorial chemistry, and thin-film coating technology holds promise that improved materials are available for novel systems for hydrogen generation by photo(-electro)catalytic water splitting. The increasing need for water purification, waste-water treatment, and hygiene technologies opens possibilities for photocatalysis. Photocatalysis is also a prime example for exploitation of biomimetic processes in energy conversion, but classic materials issues are what limit the efficiency and durability of systems for solar energy conversion. Cross fertilization is taking place across these fields, all of which are closely linked to materials science problems and solutions.

This symposium is devoted to the multidisciplinary field of *Photocatalysis Materials for Energy and Environment* and, therefore, will advance the field by focusing on the materials issues native to photocatalysis, including nanosciences, particle and film synthesis, electrochemistry, combinatorial chemistry and computational modeling, solid-liquid interface, biomimetics, and catalysis.

Topics of interest include (but are not limited to):

- Strategies for suppression of e^-/h^+ recombination
- Photocatalyst materials: TiO_2, and other than TiO_2
- Anion vs. cation substitution concepts and catalyst electronic structure
- The role of the water and solid-liquid interface in PC/PEC
- Quantum size effects on PC nanoparticles: how to overcome and exploit
- Nano-architecture and gradient concepts for optimized photon harvesting
- Modeling: density functional theory, molecular dynamics, etc.
- Corrosion protection of corrosive photocatalysts
- Characterization, *in-situ*/*in-operandi*, and ultrafast aspects of photocatalysts
- Performance beyond chemistry: influence of structure and morphology
- H_2 and biofuels: competition or synergy?
- Biomimetics in photocatalysis

A joint session with Symposium Q: *Materials Science of Water Purification* (photocatalytic materials for disinfection and destruction of contaminants) is being considered.

Invited speakers include:

Bernard O. Aduda (Univ. of Nairobi, Kenya), Armand Ajdari (St. Gobain Group, France), Jan Augustynski (Warsaw Univ., Poland), Detlef W. Bahnemann (Univ. of Hannover, Germany), Allen J. Bard (Univ. of Texas-Austin), David Chandler (Univ. of California-Berkeley), Roxanne Garland (US Dept. of Energy), Michael Graetzel (École Polytechnique Fédérale de Lausanne, Switzerland), Michael R. Hoffmann (California Inst. of Technology), Stephan J. Hug (Eawag - Swiss Federal Inst. of Aquatic Science and Technology, Switzerland), Nathan S. Lewis (California Inst. of Technology), Takashi Nohmura (PIAJ: Photocatalysis Industrial Assoc. of Japan), Cesar Pulgarin (École Polytechnique Fédérale de Lausanne, Switzerland), Stenbjörn Styring (Uppsala Univ., Sweden), and Zhigang Zou (Nanjing Univ., China).

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